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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/729,950	12/09/2003	Fujio Ito	XA-9996	2722
181	7590	05/05/2005	EXAMINER	
MILES & STOCKBRIDGE PC 1751 PINNACLE DRIVE SUITE 500 MCLEAN, VA 22102-3833			HUYNH, ANDY	
			ART UNIT	PAPER NUMBER
			2818	

DATE MAILED: 05/05/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

10/729,950

Applicant(s)

ITO ET AL.

Examiner

Andy Huynh

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 09 December 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-11 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-11 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 09 December 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
- 1) ☒ Certified copies of the priority documents have been received.
  - 2) ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - 3) ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date 12/09/2003.
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_.

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### **DETAILED ACTION**

In the Preliminary Amendment filed 12/09/2003, claims **12-15** are canceled is acknowledged. Accordingly, claims **1-11** are currently pending in the application.

#### ***Priority***

Acknowledgment is made of applicant's claim for foreign priority under 35 U.S.C. 119(a)-(d) based on an application filed in JAPAN, 2002-378625 on 12/26/2002.

#### ***Information Disclosure Statement***

This office acknowledges receipt of the following items from the applicant: Information Disclosure Statement (IDS) filed on 12/09/2003. The references cited on the PTOL 1449 form have been considered.

#### ***Claim Objections***

Claim **9** is objected to because of the following reasons.

"a plurality of leads" should read --the plurality of leads --.

#### ***Claim Rejections - 35 U.S.C. § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless -

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

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(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims **1, 3, 5, 8 and 10** are rejected under 35 U.S.C. 102(b) as being anticipated by Minamio et al. (USP: 6,208,020 hereinafter referred to as "Minamio'020").

Regarding claim **1**, Minamio'020 discloses in Figs. 1(a)-1(b) and the corresponding texts as set forth in column 8, line 48-column 10, line 67, a semiconductor device comprises:

- a semiconductor chip 4;
- a plurality of leads 1 arranged around the semiconductor chip;
- terminals 9 connected to the plural leads respectively;
- a plurality of wires 5 for connecting the semiconductor chip and the plural leads electrically with each other; and
- a resin sealing member 6 for sealing the semiconductor chip, the plural leads and the plural wires;
- the terminals connected respectively to the plural leads being exposed to the exterior from a back surface of the sealing member,
- wherein one ends of the plural leads 1 are exposed to the exterior from side faces of the resin sealing member and are covered throughout the whole peripheries thereof with resin which constitutes the resin sealing member (Fig. 1(a)).

Regarding claim **3**, Minamio'020 discloses in Figs. 1(a)-1(b) the semiconductor chip is mounted over a die pad portion 2 supported by a plurality of suspension leads 3, one end of each

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of the plural suspension leads is exposed to the exterior from side faces of the resin sealing member at a corner of the resin sealing member, and the whole periphery thereof is covered with the resin which constitutes the resin sealing member.

Regarding claim 5, Minamio'020 discloses in Fig. 1(a) the terminals are respectively constituted such that portions of the leads are projected to the exterior from a back surface of the resin sealing member.

Regarding claim 8, Minamio'020 discloses in Fig. 1(a) in each of the plural leads, the thickness of its portion positioned outside its terminal-connected portion is larger than its portion positioned inside its terminal-connected portion.

Regarding claim 10, Minamio'020 discloses in Figs. 1(a)-1(b) the area of the die pad portion 2 is smaller than the area of the semiconductor chip 4.

Claims 1, 3, 5 and 9-11 are rejected under 35 U.S.C. 102(e) as being anticipated by Minamio et al. (US 2002/0121670 A1 dated 09/05/2002, filed 02/27/2002 hereinafter referred to as "Minamio'670").

Regarding claim 1, Minamio'670 discloses in Figs. 4A-4C and the corresponding texts as set forth in paragraphs [0069]-[0080], a semiconductor device comprises:

- a semiconductor chip 20;

- a plurality of leads 14-16 arranged around the semiconductor chip;

- terminals 14b-16b connected to the plural leads respectively;

a plurality of wires 21 for connecting the semiconductor chip and the plural leads electrically with each other; and

a resin sealing member 22 for sealing the semiconductor chip, the plural leads and the plural wires;

the terminals connected respectively to the plural leads being exposed to the exterior from a back surface of the sealing member (Fig. 4B),

wherein one ends of the plural leads 14 are exposed to the exterior from side faces of the resin sealing member and are covered throughout the whole peripheries thereof with resin which constitutes the resin sealing member.

Regarding claim 3, Minamio'670 discloses in Fig. 4A the semiconductor chip is mounted over a die pad portion 12 supported by a plurality of suspension leads 13, one end of each of the plural suspension leads is exposed to the exterior from side faces of the resin sealing member at a corner of the resin sealing member, and the whole periphery thereof is covered with the resin which constitutes the resin sealing member.

Regarding claim 5, Minamio'670 discloses in Fig. 4B the terminals are respectively constituted such that portions of the leads are projected to the exterior from a back surface of the resin sealing member.

Regarding claim 9, Minamio'670 discloses in Fig. 6B and the corresponding texts as set forth in paragraph [0086] the semiconductor chip is mounted over a sheet-like chip support 30, and the chip support is supported by a plurality of leads 14.

Regarding claim 10, Minamio'670 discloses in Fig. 4C the terminals 14b-16b are arranged zigzag in two rows along the sides of the resin sealing member.

Regarding claim 11, Minamio'670 discloses in Fig. 4B the area of the die pad portion 12 is smaller than the area of the semiconductor chip 20.

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 2, 4 and 7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Minamio et al. (USP: 6,208,020 hereinafter referred to as "Minamio'020") in view of Kusano, Hidetoshi (JP 07176678 hereinafter referred to as "Kusano").

Regarding claim 2, Minamio'020 discloses the all claimed limitations as above except for one end of each of the plural suspension leads is branched in the vicinity of a corner of the resin sealing member. Kusano teaches in Figs. 1-2 that one end of each of the plural suspension leads 2 is branched in the vicinity of a corner of a lead frame 1 to inhibit torsion of the suspension leads. It would have been obvious to one having ordinary skill in the art at the time of the invention was made to incorporate the teaching of forming one end of each of the plural suspension leads is branched in the vicinity of a corner of a lead frame, as taught by Kusano, into and modify the Minamio'020's structure to arrive the claimed limitation in order to inhibit torsion of the suspension leads (see English Abstract).

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Regarding claim 4, Minamio'020 discloses in Fig. 1(a) the plural suspension leads are each partially exposed to the exterior from a back surface of the resin sealing member.

Regarding claim 7, Minamio'020 discloses in Fig. 1(a) a back surface of the die pad portion is partially exposed to the exterior from a back surface of the resin sealing member.

Claim 6 is rejected under 35 U.S.C. 103(a) as being unpatentable over Minamio et al. (USP: 6,208,020 hereinafter referred to as "Minamio'020").

Minamio'020 discloses the all claimed limitations as above except for the terminals are formed of an electrically conductive material different from the material of the leads. It would have been obvious to one having ordinary skill in the art at the time of the invention was made to form the terminals having an electrically conductive material different from the material of the leads, since it has been held to be within the general skill of a worker in the art to select a known material on the basis of its suitability for the intended use as a matter of obvious design choice.

In re Leshin, 125 USPQ 416.

### ***Conclusion***

A shortened statutory period for response to this action is set to expire 3 (three) months and 0 (zero) day from the day of this letter. Failure to respond within the period for response will cause the application to become abandoned (see M.P.E.P 710.02(b)).



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Any inquiry concerning this communication or earlier communications from the examiner should be directed to Andy Huynh, (571) 272-1781. The examiner can normally be reached on Monday-Friday from 8:30 AM to 5:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Nelms can be reached on (571) 272-1787. The Fax number for the organization where this application or proceeding is assigned is (703) 872-9306.

Any inquiry of a general nature or relating to the -status of this application or proceeding should be directed to the receptionist whose phone number is (703) 308-0956.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

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04/28/05



Andy Huynh

Patent Examiner